

26 March 2014
Translation Specifications (transpec) into IMMA1 format:
German Maury Collection (1845-68)
by ESRL

A. Data provenance and background

This collection was loaned to NCDC by the Deutscher Wetterdienst (DWD) for imaging (Braun 2000; completed in 2005), followed by digitization by the NOAA Climate Database Modernization Program (CDMP; completed in 2006). DWD (2001) provides an inventory, and NCDC (2010) provides the keying format. The translation into IMMA format considered issues of data homogeneity with the US Maury Collection (Woodruff et al. 2005), and characteristics of the US Maury data, e.g. biased sea level pressure (SLP) observations, as studied by KNMI (Wallbrink et al. 2009). In contrast to the US Maury Collection with its greater diversity in form types during earlier years, this Collection consists primarily of a form type with five reports/day and secondarily of a type with 14 reports/day. The five reports/day form type is illustrated in Fig. 3 of Braun (2000).

B. Input format

Described in http://icoads.noaa.gov/e-doc/other/transpec/maury_german/German_Maury_Keying_Format.pdf.

C. Individual data field translation actions

Note: fields omitted from this list have no corresponding input data, and are left missing (blank), similarly with any ordinarily reported elements that are missing in the input data. In the translation actions below the word “transformed” followed by {routine(s)} refers to routines in <http://icoads.noaa.gov/software/lmrlib>.

Table C0. IMMA Core

- 1 **YR** year UTC
 Input field(s): Data Record 11-14 Year
 Translation action: *YR*=Year, transformed {rxtltu} if applicable into UTC.

- 2 **MO** month UTC
 Input field(s): Data Record 15-16 Month
 Translation action: *MO*=Month, transformed {rxtltu} if applicable into UTC.

- 3 **DY** day UTC
 Input field(s): Data Record 17-18 Day
 Translation action: *DY*=Day, transformed {rxtltu} if applicable into UTC.

- 4 **HR** hour UTC
 Input field(s): Data Record 19-20 Hour, Data Record 21 AM/PM
 Translation action: *HR*=Hour and AM/PM transformed {rxtltu} into 0-23 UTC after checks to ensure that Hour is within proper range.

- 5 *LAT* latitude
Input field(s): Data Record 23-27 Latitude
Translation action: *LAT*=Latitude after checks to ensure that Latitude is within proper range, track checks, and transformation of reported degrees, minutes, and hemisphere into 0.01°; or interpolated:
 $LAT_j = LAT_i + (\Delta t * ^\circ / \text{hr})$
- 6 *LON* longitude
Input field(s): Data Record 28-33 Longitude
Translation action: *LON*=Longitude after checks to ensure that Longitude is within proper range, track checks, and transformation of reported degrees, minutes, and hemisphere into 0.01°; or interpolated:
 $LON_j = LON_i + (\Delta t * ^\circ / \text{hr})$
- 7 *IM* IMMA version=1
- 8 *ATTC* atm count=2
- 9 *TI* time indicator
Input field(s): none
Translation action: *TI*=0 (nearest whole hour).
- 10 *LI* latitude/long. indic.
Input field(s): none
Translation action: *LI*=3 (interpolated) or *LI*=4 (degrees and minutes).
- 14 *//* *ID* indicator
Input field(s): none
Translation action: *//*=10 (composite information from early ship data).
- 15 *ID* identification/call sign
Input field(s): Header Record 5-28 Ship Name
Translation action: *ID*=Ship Name after edits for special characters and spelling errors.
- 18 *D* wind direction (true)
Input field(s): Data Record 87-93 Wind Direction
Translation action: *D*=Wind Direction transformed (ref. http://www.stormy.ca/marine/compass_rose.html) from 128-point wind direction abbreviations into degrees; or *D*=361 (calm) or *D*=362 (variable,baffling) stored as applicable.
- 19 *WI* wind speed indicator
Input field(s): none
Translation action: *WI*=5 (Beaufort force).

- 20 *W* wind speed
 Input field(s): Data Record 94-95 Wind Rate, Data Record 96-98 Wind Strength
 Translation action: *W*=Wind Rate/Wind Strength transformed {fxbfms} from Beaufort force to meters per second.
- 25 *SLP* sea level pressure
 Input field(s): Data Record 23-27 Latitude, Data Record 45 Pressure Units, Data Record 46-49 Barometric Pressure, Data Record 50 Barometer Temperature Units, Data Record 51-53 Barometer Temperature
 Translation action: Barometric Pressure and possibly Barometer Temperature transformed {fwbpgv,fwbptc,fwbptf,fxeimb,fxmmmb} from English inches/mm to hPa corrected for gravity and possibly (i.e. only if attached thermometer is also available) for temperature.
- 28 *IT* indic. for temperatures
 Input field(s): Data Record 54 Air Temperature Units, Data Record 58 Sea Temperature Units
 Translation action: *IT*=0 (tenths° C), 2 (whole °C), 3 (whole or tenths °C), 6 (whole °F), or 9 (other) is set depending on the characteristics of the input temperature elements
- 29 *AT* air temperature
 Input field(s): Data Record 54 Air Temperature Units, Data Record 55-57 Air Temperature
 Translation action: *AT*=Air Temperature transformed {fxtftc,fxtrtc} if applicable from Fahrenheit/Reaumur to degrees Celsius.
- 35 *SST* sea surface temp.
 Input field(s): Data Record 58 Sea Temperature Units, Data Record 59-61 Water Temperature
 Translation action: *SST*=Water Temperature transformed {fxtftc,fxtrtc} if applicable from Fahrenheit/Reaumur to degrees Celsius.
- 36 *N* total cloud amount
 Input field(s): Data Record 71-72 Proportion of Sky Clear
 Translation action: *N*=Proportion of Sky Clear transformed {ixt0ok} from tenths of sky clear to oktas of sky covered.

Table C1. Icoads attm

- 1 *ATTI* attm ID=1
 2 *ATTL* attm length=65
 6 *DCK* Deck=721

- 7 *SID* source ID=152
- 8 *PT* platform type
 Input field(s): none
 Translation action: *PT*=5 (ship)
- 11 *TC* track check
 Input field(s): none
 Translation action: *TC*=1 (track checked)
- 12 *PB* pressure bias
 Input field(s): none
 Translation action: *PB*=1 (if both temperature and gravity corrections applied) or 2 (if only gravity correction applied)

Table C5: IMMT-5/FM 13 (Immt) attm: not applicable
Table C6: Model quality control (Mod-qc) attm: not applicable
Table C7: Ship metadata (Meta-vos) attm: not applicable
Table C8: Near-surface oceanographic (Nocr) attm: not applicable
Table C9: Edited cloud report information (Ecr) attm: not applicable
Table C96: ICOADS Value-added Database (Ivad) attm: not applicable
Table C97: Error (Error) attm: not applicable
Table C98: Unique ID (Uida) attm: not applicable

D. Supplemental data (Suppl; Table C99) attm layout

A total of 239 characters, consisting of the Header Record (1-134) followed by the Data Record (1-105)

References

Braun, D.S., 2000: Scientific vision, a passion for observation, and the impetus for change: Germany loans Maury logs to the National Climatic Data Center. *Earth System Monitor*, **11**(1), 4-7. ([pdf](#); 14.3MB)

DWD, 2001 (approx.): Inventory of the German Maury Collection [spreadsheet: [00000003-german_maury.xls](#)].

NCDC, 2010 (approx.), [Keying Format for Maury Journals \(German set\) - First & Second Groups](#).

Wallbrink, H., F. Koek, and T. Brandsma, 2009: *The US Maury Collection Metadata* 1796-1861. KNMI-225/HISKLIM-11 (<http://www.knmi.nl/bibliotheek/knmipubmetnummer/knmipub225.pdf>)

Woodruff, S.D., H.F. Diaz, S.J. Worley, R.W. Reynolds, and S.J. Lubker, 2005:
Early ship observational data and ICOADS. *Climatic Change*, **73**, 169-194
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